

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method of hydrogen gas generation, comprising the steps of:

culturing genetically modified algae under illuminated conditions wherein sulfate permease expression of the algae, comprising SEQ ID NO:1, is reduced relative to unmodified wild-type algae wherein the algae is genetically modified to disrupt expression of chloroplast sulfate permease gene *CrcpSulP* comprising SEQ ID NO:2 by insertion of an antisense sequence which hybridize to a portion of SEQ ID NO:2 mRNA;

sealing the algae culture from atmospheric oxygen; and
collecting hydrogen gas evolved.

2. (Currently Amended) The method of claim 1, hydrogen gas generation, comprising the steps of:

culturing genetically modified algae under illuminated conditions wherein sulfate permease expression of the algae is reduced relative to unmodified wild-type algae wherein the algae is a green algae and the algae comprises a genome which is artificially engineered to reduce sulfate permease expression comprising SEQ ID NO:1 relative to a wild-type algae by insertion of an antisense sequence which hybridize to a portion of SEQ ID NO:2 mRNA.

3. (Previously Presented) The method of claim 2, wherein the algae is a unicellular, photosynthetic algae.

4. (Canceled)

5. (Canceled)

6. (Currently Amended) A method of hydrogen gas generation, comprising the steps of:

culturing algae under illuminated conditions, wherein the algae is an isolated strain with downregulated expression of sulfate permease with 50% or less expression of chloroplast sulfate permease gene *CrcpSulP* comprising SEQ ID NO:2 by insertion of an antisense sequence which hybridize to a portion of SEQ ID NO:2 mRNA;

sealing the algae culture from atmospheric oxygen; and
collecting hydrogen gas evolved.

7. – 31. (Canceled)

32. (New) A method of hydrogen gas generation, comprising the steps of:
culturing genetically modified algae under illuminated conditions wherein sulfate
permease expression of the algae algae, comprising SEQ ID NO:1, is reduced relative to unmodified
wild-type algae wherein the algae is genetically modified to disrupt expression of chloroplast sulfate
permease gene CrcpSulP comprising SEQ ID NO:3 by insertion of an antisense sequence which
hybridize to a portion of SEQ ID NO:3 mRNA;
sealing the algae culture from atmospheric oxygen; and
collecting hydrogen gas evolved.